

CHAPTER 2. AFFECTED ENVIRONMENT

2.1 Facilities

The general layout of Fort Richardson is shown in Figure 2-1. The cantonment area encompasses 5,760 developed acres located along the Glenn Highway near the center of the post. This area contains 568 buildings with 7,609,513 square feet of floor space. The post provides housing, facilities and activities that add up to good military living. There are community services, medical and dental facilities, excellent churches, schools, libraries, crafts shop, newspaper, theater, golf and ski courses, and cross country trails, along with a post exchange, commissary and a large physical fitness facility.

Fort Richardson's remaining 55,000 acres are comprised of maneuver and impact areas (U.S. Army Alaska Undated). The 44,071 acres of maneuver area include 42,898 acres of training area. The post has major ranges (Figure 2-1) in addition to artillery and mortar firing points. These include small arms ranges, large ranges, landing zones, and drop zones.

2.1.1 Range Facilities

All areas outside of urban areas are defined as range facilities. Range facilities can be further broken down as follows:

- Firing Ranges
- Impact Areas
- Training Areas
- Drop Zones / Landing Zones
- Artillery Firing Points

2.1.1.1 Firing Ranges

- Mahon Range

- Fieldfire Range
- Statler-Newton Small Arms Range for .38 and .45 caliber pistols
- Oates-McGee Range for M-60 firing at 500 to 1,000 feet
- Grezelka Range for M-16 and M-60 training and qualification
- Zero Range
- Record Range for M-16 qualification
- Pendeau Range for M-16 and M-14 training
- Grenade Range
- Shoot House Range
- Off-Duty Range
- 40mm Range
- Davis Range Complex (1,333 acres) for live-fire training; includes a platoon battle course, a defensive trench system, ambush and defensive sites, and several live-fire courses
- Biathlon Range (692 acres) used for training in Arctic combat; has three ski trails and an arms range for firing M16 and 22 caliber rifles



Machine gun training on Grezelka Range.

- Aerial Target Range for training in engagement techniques for aerial targets
- Demolition Range
- McLaughlin Range Complex (692 acres) used for live-fire training of the LAW AT4 and Mark 19

2.1.1.2 Other Range Facilities

- ERF Impact Area for mortar and artillery firing from approximately 30 firing points on North Post
- Malemute Drop Zone (214 acres which is being expanded by 200-300 acres) used to support of strategic airborne operations and can support a company-sized operation
- Landing Zones (about 25) for helicopter assaults
- Another significant training facility is the Squad Obstacle Training Course, which consists of rope bridges and cliff rappelling sites



Malemute Drop Zone provides important training for both the Army and the Air Force.



The Alaska Railroad connects Fort Richardson to the Interior and the Kenai Peninsula.

2.1.2 Transportation System

Fort Richardson is bisected by the Glenn Highway (U.S. Highway 1), which provides primary access to the post. It is the most heavily used highway in the state, connecting south-central Alaska to the Matanuska Valley. It continues northeast past the Richardson Highway at Glennallen to intercept the Alaska Highway at Tok (Figure 2-2).

Northeast of Fort Richardson, a few miles south of Palmer, the Parks Highway (U.S. 3) intercepts the Glenn Highway and provides the only highway link directly north to Mount McKinley National Park and Fairbanks. Richardson Drive passes through the heart of the cantonment area, connecting Fort Richardson with Elmendorf AFB.

The Alaska Railroad provides rail service to Fort Richardson. Its main line crosses the post north of the cantonment area and a spur extends to a loading facility and an ammo storage complex. The railroad provides both freight and passenger service with access to Fairbanks and two unique port facilities: (1) the port of Whittier, and (2) Seward, which is a deep water port at the southern terminus of the railroad. Here, intermodal traffic from Sea-Land Freight Service, Totem Ocean Trailer Express, Alaska Lynden Transport and other sources is transferred to and from ships.

The airfield at Elmendorf AFB provides Fort Richardson's primary air link. Located adjacent to Fort Richardson and roughly 2.5 miles from the center

Figure 2-1. Fort Richardson Facilities.

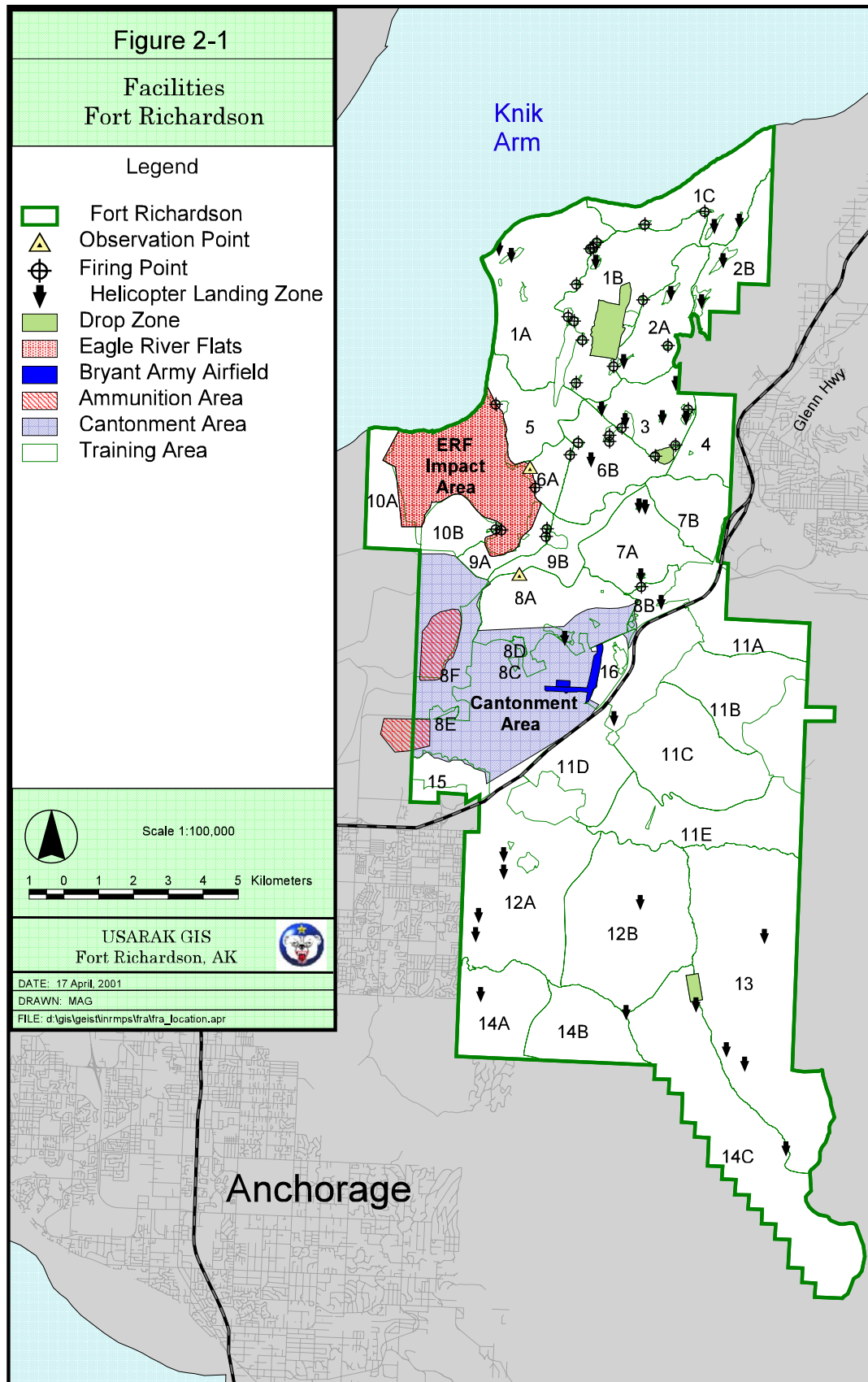
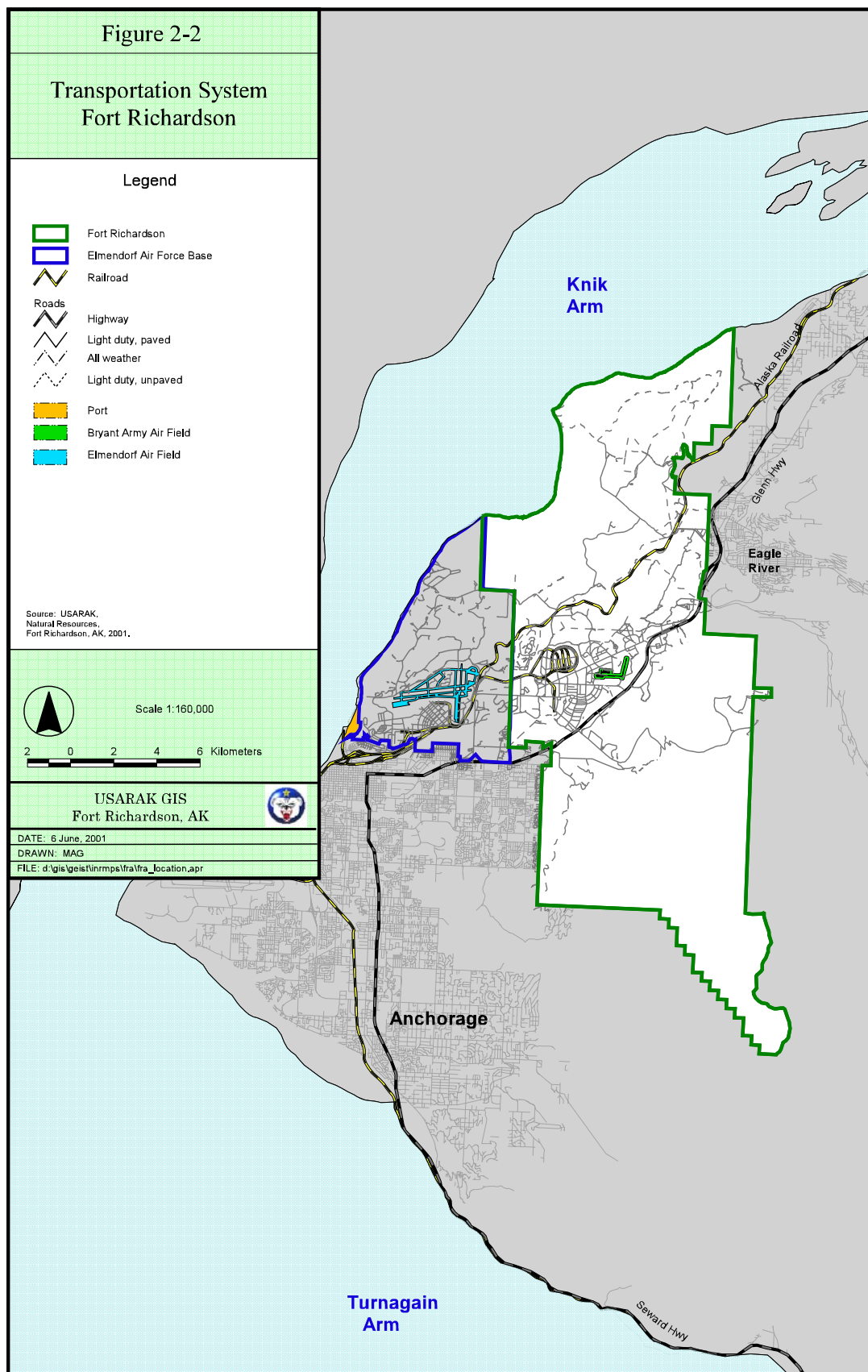


Figure 2-2. Fort Richardson Transportation System.





Downtown Anchorage.

of the cantonment area, the airfield can support any type of military aircraft, including Galaxy C5s.

Bryant Army Air Field (AAF), located adjacent to the cantonment area and the Glenn Highway, has a main, hard-surfaced, north/south runway, which is 3,000 feet in length. It also has a hard-surfaced crosswind runway oriented east/west. Bryant AAF is used primarily by the Alaska Army National Guard as a base for its fixed-wing and rotary aircraft. Large parking aprons and several hangars are located on the airdrome.

Anchorage International Airport, 15 miles southwest of Fort Richardson, is the nearest commercial airport. It is the largest airport in Alaska for both passenger and air cargo operations. More than 30 carriers provide passenger service in the recently renovated airport. It is the largest air cargo handler and transfer site in the United States.

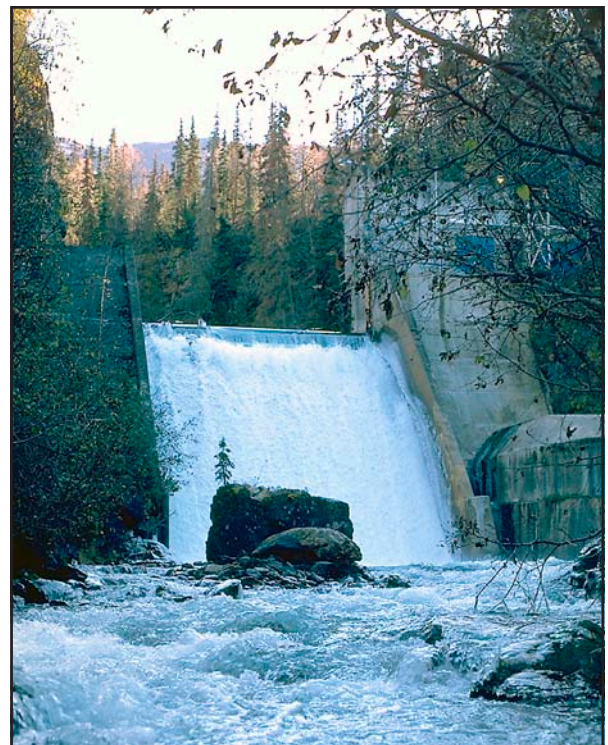
Anchorage lies near the head of Cook Inlet at the mouth of the Knik Arm, an important navigable waterway. Access to the Inlet was influential in siting original settlements in the Anchorage area. USARAK operates a deep water sea port and fuel terminal on Knik Arm, immediately north of downtown Anchorage.

2.1.3 Water Supply

Fort Richardson's water is supplied primarily by Ship Creek, which traverses Fort Richardson from east to west for approximately eight miles. Ship Creek "high dam," with a structural height of 50 feet, forms a reservoir that impounds approximately 5 million gallons of water at maximum capacity.

The high dam and intake facilities are located on the post near the base of Ship Creek Canyon. All of the domestic water for Fort Richardson and Elmendorf AFB comes from the reservoir. Anchorage also receives part of its water supply from Ship Creek. Water from the creek is excellent quality and exceeds drinking water standards set by the Environmental Protection Agency (EPA). A water treatment plant is located near the dam and is used for extraction of sediments and minor chemical processing with chlorine and fluoride. Fort Richardson also maintains three groundwater wells, each approximately 100 feet deep, as an emergency supplemental water supply to Ship Creek surface water. Water from the wells is virtually pollution-free due to protection of the deep aquifer by a dense confining substratum (Gossweiler 1984). More information regarding Ship Creek and the Ship Creek Dam can be found in the publication *Chronology of Water Use and Water Rights on Ship Creek* (Quirk 1997).

The Ship Creek floodplain upstream of the Glenn Highway has received minimal disturbance in past years, however, a new golf course constructed in 1997 has reduced the riparian vegetation associated with the creek. More importantly, the high dam,



Ship Creek "high dam."

constructed in 1952, has, and continues to, severely affect the creek's hydrology and stream dynamics.

The portion of Ship Creek on Fort Richardson that is west of the Glenn Highway has been more severely impacted over the years. The creek bottom from Cottonwood Park to the Central Heat and Power Plant has been channelized and the north bank has been stabilized to prevent erosion. Near the power plant is a low dam and intake pond that supplies water for power plant operation. West of the Fort Richardson Fish Hatchery is a cooling pond, which empties into Ship Creek. The fish hatchery has several water wells that were drilled in the shallow aquifer near Ship Creek. The wells are used to supply fresh water for the raceways in the hatchery. A bridge carrying a steam line crosses Ship Creek about a half mile downstream from the power plant. The remainder of Ship Creek to the Elmendorf AFB boundary is for the most part in a natural condition and has not been disturbed.

2.1.4 Projected Changes in Facilities

There are few projected changes in facilities that will have significant impacts on natural resources management at Fort Richardson. Most of these changes involve construction projects within the cantonment area on sites already developed and cleared of forests. Facility changes with potential impacts on natural resources include:

- The Elmendorf AFB hospital and adjacent housing area, which is under construction on former Fort Richardson lands.
- Expansion of Malemute Drop Zone requiring the removal of up to 300 acres of mature forests.
- Future development of the National Guard area requiring up to 200 acres.

2.2 Physical Resources

2.2.1 Topography

Fort Richardson lies between the Turnagain Arm and the Knik Arm of the Cook Inlet in a roughly triangular-shaped lowland. To the east, the Chugach



The Anchorage plain as seen from the Chugach Mountains.

Mountains rise abruptly to elevations over 5,000 feet. From an elevation of 1,000 feet at the base of the mountains, the land declines into the Anchorage plain to the coast. The Anchorage plain is a glacial moraine that extends from the mountain front westward and northwestward. Steep bluffs, broken only by principal streams such as Eagle River, characterize the edge of the plain as it drops sharply to the sea (CH2M Hill 1994b). Figure 2-3 illustrates the topography of Fort Richardson.

2.2.2 Geology

Geology of the Fort Richardson area was shaped by the formation of the Chugach Mountains in the late Paleozoic and Mesozoic eras and the subsequent flow of sediments into lowlands during the Tertiary Period (Gossweiler 1984). The Chugach Mountains have a bedrock of metamorphic rocks of the McHugh complex composed of a mixture of metamorphose siltstone, lithic sandstone, arkose, and conglomerate sandstone (CH2M Hill 1994b). The lowland's bedrock is composed of sedimentary rocks of conglomerate sandstone, mudstone, and coal. It is connected with metamorphic rocks of the mountains along the vertical Border Ranges Fault, that lies at the base of the Chugach Mountains (CH2M Hill 1994b).

Bedrock in lowlands rarely surfaces because it is covered by thick deposits of unconsolidated material that accumulated during the Holocene Period, one million to ten thousand years ago (Gossweiler 1984). These surface deposits begin at the mountain front and thicken as they slope downward to Cook Inlet. Thickness varies from zero at the foot

Figure 2-3. Fort Richardson Terrain.

